DOCUMENT RESUME

ED 434 261 CE 079 298

AUTHOR	Billett, Stephen; Cooper, Maureen
TITLE	Returns to Enterprises from Investment in VET. Review of Research.
INSTITUTION	National Centre for Vocational Education Research, Leabrook (Australia).
ISBN	ISBN-0-87397-437-9
PUB DATE	1997-00-00
NOTE	37p.
AVAILABLE FROM	National Centre for Vocational Education Research, 252 Kensington Road, Leabrook, South Australia 5068, Australia. E-mail: ncver@ncver.edu.au; Web site: <http://www.ncver.edu.au/>.
PUB TYPE	Information Analyses (070)
EDRS PRICE	EDRS Price MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	*Cost Effectiveness; *Education Work Relationship; Foreign Countries; Literature Reviews; Measurement Techniques; *Outcomes of Education; Postsecondary Education; School Business Relationship; *Small Businesses; Synthesis; Trend Analysis; *Vocational Education
IDENTIFIERS	*Australia; *Return on Investment

ABSTRACT

Recent (within the past 6 years) research on returns to Australian enterprises from investment in vocational education and training (VET) was reviewed. Special attention was paid to the following topics: relationship between enterprise size, specialization, and location and investment in formal training; approaches to appraising enterprises' returns on investment in training; and directions for further research. Selected findings of the review were as follows: (1) larger enterprises carry a higher level of the burden of investing in VET than smaller enterprises do; (2) factors that have been proposed to explain smaller businesses' comparatively small investments in VET include required level of skills, lack of incentive, other priorities, a preference for recruitment rather than training, and lack of knowledge about training activities and networks; (3) enterprises' specialization and location are important determinants of the amount they invest in training; (4) the government appears more interested in cost-benefit analysis (CBA) than enterprises are; (5) the consensus regarding the many CBA models proposed in the literature is that there are too many compounding and contradictory variables to suggest sensibly that returns can be quantified in terms of bottom-line profit; and (6) CBA models addressing variables of interest to enterprises are needed. (Contains 51 references.) (MN)

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Returns to enterprises from investment in VET

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ISBN 0 87397 437 9

TD/TNC 51.03

Published by NCVER
252 Kensington Road
Leabrook SA 5068
AUSTRALIA

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Executive summary

THIS REPORT COMPRISES an analysis of recent research which addresses the topic 'Returns to enterprises from investment in VET'. The report initially presents a summary of the analysis of the research and recommendations.

Following this, the approach adopted for the task is described, as is the analytical framework which emerged from the review of literature. The body of the report addresses how the reviewed research contributes to addressing the question, identifying those areas which have been researched, those yet to be researched and those where more detailed or empirically-based investigations are warranted.

The analysis of recent research presented in this summary is presented under two headings: *Enterprises and investment* and *Enterprises and returns*.

Not all enterprises make the same level of investment (contribution) to VET, with size, specialisation and location as variables which influence different levels of contribution. While dealt with separately, these variables are interdependent.

Therefore, questions emerge from this analysis:

- How does the different level of training investment required by enterprises influence their commitment to training?
- What is the impact on national VET when publicly funded VET arrangements favour particular industries?
- What are the long-term national consequences of investment in training which is at a low level and is enterprise specific?
- How can the burden of the development of skills required for national goals best be shared to encourage the investment in skill development by enterprises?

Questions emerge from the analysis of the literature on returns to enterprises from their investment in training:

- How best can we overcome barriers which inhibit investment in training by small business?
- If low levels of investment in training by small business continue, what approaches need to be implemented to maintain and increase the nation's quantum of training activity?

Context

THE NEED FOR Australia to become more competitive internationally—particularly during a time of rapid technological change—has led to demand for the development and upgrading of the skills required for workplace performance. Enterprises need to respond quickly to market demand for new and innovative products, services and processes. Such responsiveness requires a skilled workforce and places increased value on the knowledge and skills needed by enterprises to implement successful innovations in the workplace (Burke et al. 1994). Australian governments over the last decade have focussed on the nation's global competitiveness, premised upon a skilled and flexible workforce. Moreover, they have encouraged participation in skill development through emphasising links between productivity and remuneration within micro-economic reform, which often mandated training arrangements in restructured industrial agreements.

Being mindful of the potential cost to the public purse of increased training activity through restructured awards, initiatives were enacted to encourage more of the cost of training to be borne by the private sector, as recommended by Deveson (1990). The introduction of the now defunct Training Guarantee Scheme in 1989 was one such initiative. It aimed to encourage equity in the contribution by enterprises in the skill development of the nation's workforce through a commitment to their employees' development. Arising from this initiative was the concept that enterprises' contribution to workers' skill development was not a cost, but rather an investment in the enterprise's skill base. If all enterprises were to contribute, the nation's skills base would be maintained and the burden shared, while securing national goals of increasing the quantum of industry training.

Leading from this initiative and including a focus on micro-economic reform at the enterprise level, other enterprise-based factors are now influencing decisions about the contribution (investment) by enterprises in developing the skills required for workplace performance. For example, Billett (1994a) reported that among the enterprises he studied, training was valued for more than its ability to develop skills and knowledge associated with narrow

vocational goals. It was also valued for its ability to assist with workplace change and the development of employees' skills in decision making, teamwork and continuous improvement. Similarly, Wolt (1996) reports from research across OECD countries that employers will pay for the development of current specific skills and some generic skills that will lead toward achieving strategic goals. Taking an Australian example, the car manufacturer Ford, which views education and training programs as the means of supporting organisational restructuring with the company, has made a significant investment in education and training since the early 1990s (Miller 1996).

The recent literature provides useful insights to understand further what motivates the degree to which enterprises of different sizes, speciality and location invest in training. It also informs about who is interested in measuring the benefits of training and in what ways. This leads to some questioning about the effectiveness of past policies. These policies aimed to encourage the development of the nation's workforce through workplace provisions and increasingly to place the cost of this development within enterprises. As well as demonstrating areas well addressed by contemporary research, this synthesis of the literature finds gaps in knowledge which should become priorities for research.

Enterprises and investment

THE DEGREE OF investment required or being committed to by enterprises remains uneven. Some enterprises will or are expected to bear the full cost of training, while other enterprises' skill development needs are furnished through programs which are funded largely at public expense (Moran 1994). There are different kinds of investments in training that enterprises can make. Some enterprises use the labour market to meet their need for skilled workers (Sloan 1994; Misko 1996). However, whether they intend it or not, all enterprises, including the latter, make a contribution through the provision of learning experiences which are often referred to as 'informal' (Misko 1996; Guthrie & Barnett 1996). To what degree the knowledge learnt through these experiences is robust (transferable and adaptable) will likely be determined by the types of activities learners engage in and the kind of guidance they access when undertaking these activities (Billett 1996).

Participation in structured entry-level training which includes both on and off-the-job experiences is another kind of contribution. Apprenticeships characterise these arrangements and usually involve the enterprise making some contribution in the form of wages of the employee while they are participating in the off-the-job components and supervising apprentices on the job. In the early years of their training, apprentices may not always be viewed as covering the costs of their employment (Dockery et al. 1996).

Providing specialised training to develop initial or further workforce skills through sending employees to training programs is another kind of investment that enterprises make. In addition, some enterprises cover the cost of their employees' participation in appropriate programs on receipt of evidence of their successful completion. The provision of an internal training role comprising staff and facilitators dedicated to training is a more comprehensive type of investment which often results from particular enterprise needs (Billett 1994a). However, there will be different reasons why enterprises may select to adopt one or more of these options. The basis by which enterprises make these differential commitments to training includes

factors associated with size, specialisation and location. While dealt with separately, these variables are interdependent.

Size

Findings indicate that differences in concerns and focus are influenced by the size of an enterprise and strong evidence suggests quite different patterns of investment occur in enterprises of different size. Larger enterprises are more likely to be making greater contributions to the development of the nation's workforce than smaller enterprises. This is particularly evident in figures about participation in formal VET programs (Sloan 1994). But to secure a full picture of enterprise commitment to VET, there is a need to include informal as well as formal programs. Informal training activities do not lend themselves well to the type of reporting favoured by formal VET programs. For instance, the type of in-house training in Japanese corporations as part of everyday practice is not readily quantified (Dore & Sako 1989). Hence, despite the enormous commitment by Japanese corporations to the skill development of their workers, that country does not fare well in some early international comparisons of VET (see Sloan 1994).

It is important to examine studies which relate to both formal and informal training, as activities which might be classified as informal may well characterise the training investment within both small and large enterprises. In this review, formal training refers to training which has some type of structure (e.g. intents and stated processes) which may or may not be credentialled. Informal training refers to that which takes place as part of everyday activities in the workplace and may lack stated intents and processes. So, for example, the on-the-job experiences of apprentices would be considered informal, whereas their experiences in a TAFE college or enterprise training room are formal. For the purposes of this review, large enterprises are those with 100 employees or more; medium enterprises, with between 20–99 employees; and small enterprises, with less than 20 employees.

Enterprise size and formal training

Formal training expenditure per employee is greater in medium-to-large enterprises where it represents an average of 3 per cent of payroll compared with 1.7 per cent in small enterprises (Burke 1995). The lesser expenditure by small enterprises is attributed to a number of factors. These include a greater

concentration of jobs with low skill requirements in the small business sector (Baker & Wooden 1995) and managers not recognising the training needs of their employees or being able to set training objectives (Catts 1996). Coopers and Lybrand (1994) reported that small business employers who have not experienced the benefits of training themselves are less likely to arrange for formal training by an external provider. Moreover, small business owners may be reluctant to invest in training when they are preoccupied with short-term survival and small business workers are less likely to undertake training when it provides no incentives to improved job prospects (Wooden & Baker 1996). Furthermore, the compliance costs for an apprenticeship have been reported as falling disproportionately on small business (Cabalu et al. 1996) which may inhibit commitment to this form of entry-level training.

Smith (in press) reports that large enterprise training departments provide more formal training because the existence of training facilities supports formal, off-the-job training. Baker and Wooden (1995) report that large firms provide more training in management and support functions than small firms who focus their training on activities which are directly related to increased production of goods or services. Catts (1996) found that the formal training employees received in four small to medium-sized enterprises (SME) was highly specific and provided by product suppliers (vendor training). It took the form of product knowledge sessions and training concerned with the installation, maintenance and repair of equipment. Another study of large enterprises (coal mines) also reports the value of vendor training when the knowledge provided by this form of training could not be found within the workplace (Billett 1993).

From analyses of ABS Training Surveys (1993 & 1994) data, Baker and Wooden (1995) found that 87.4 per cent of workers from small enterprises indicated they had not had any formal training in work time during the previous 12 months compared with 56.7 per cent of workers from large enterprises. The most common response given for not participating in training by workers in small businesses was that there was no need for training. Workers felt adequately trained for their jobs and believed training would make little difference to improved job prospects.

Another factor explaining why small enterprises provide less formal training than large enterprises is that they recruit more trained people than large enterprises (Baker & Wooden 1995). Coopers and Lybrand (1994) reported that

small businesses tend to rely on the external labour market for providing new skills rather than training employees. Misko (1996) also reports a preference for hiring already qualified personnel. However, Coopers and Lybrand (1994) note that the tendency for small businesses to train employees did increase as the number of employees and annual turnover increases. Callaghan (1991, cited in Baker & Wooden 1995) reported that innovation and new technologies are an important catalyst for training and these factors tend to increase with firm size. Again, this suggests that when enterprises cannot secure the knowledge required for work performance from within their enterprise, they will make an investment by sourcing it externally or, alternatively, source the labour market.

In a study of four small and medium enterprises in provincial Queensland, Catts (1996) found the owners of the businesses reluctant to pay for structured training. Government funding was secured to assist with the study. The owners reported providing adequate support in the form of paying staff to participate in training particularly when they were unconvinced of the benefits and had little confidence in the training being of any value to their business. In a Coopers and Lybrand (1994) study of about 800 small businesses (funded by the Commonwealth Government), training was not readily identified as a 'top of the mind' way to address problems or issues limiting growth. Training was often seen as 'not relevant', 'too theoretical' and 'without immediate benefit to the business'. Together, these perceptions may be a factor in the persistent low level of investment in training made by small enterprises compared to that of larger enterprises (e.g. Baker & Wooden 1995).

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Catts (1996) recommends that government funding be made available to support small businesses where there is no commitment to training in order to encourage participation in structured training and demonstrate its benefits. In Misko's (1996) study, personnel from 13 case study enterprises suggested that work-based training might be expanded if government supported the training required to implement the training reform agenda. This might include rebates for the cost of accredited work-based training, increased provision of funding such as Assistance to Firms Implementing Change (ATFIC) and rebates for train-the-trainer and workplace assessor training.

Strategic alliances may be a training option for some small businesses but this will need to be promoted as a beneficial and viable option (Misko 1996). In addition, the expertise of managers/principals of small businesses may be

lacking. They may require assistance in making appropriate training choices and dealing with the documentation requirements of funding providers.

Moran (1993) acknowledges that the national VET system needs to find ways of communicating more successfully with its clients so that they can readily access information and utilise the training system. Callus (1994, p. 17) suggests that 'few small businesses wouid have any idea what an ITAB is or does, or what competency-based skills are' (p.17).

This observation was supported by Baker (1997), who reports survey findings which suggest that iess than 30 per cent of respondents from small businesses recognised the name of their relevant ITAB, compared to almost 48 per cent of respondents on firms having more than 50 employees. Smith (in press) reports on case studies of private sector enterprises that showed many small businesses did not have knowledge of training availability and how to access it through training networks. He also found that whilst a few enterprises, particularly those in the food industry, were carrying out industry-based training programs, the majority of enterprises were not implementing training reforms as envisaged by the government. There was also a lack of knowledge regarding national competency standards for industries and accessibility of training.

Guthrie and Barnett (1996) report a lack of understanding amongst enterprises regarding the formal accreditation of training programs. They also highlight perceptions that excessive bureaucracy has discouraged some enterprises from participation in the formal training process. From survey responses, Misko (1996) found that few enterprises used government incentives for work-based training. Reasons given included the inappropriateness of the incentive, the lack of awareness of available incentives and the bureaucratic nature of the incentive arrangements. However, of 13 case study enterprises, Misko (1996) reported that 12 had accessed some form of government work-based training incentives. These incentives had been significant in the decision to employ apprentices and trainees and the provision of English language literacy and numeracy programs. The case studies reflected the survey responses in referring to problems of bureaucratic structures, which included inflexibility, not catering for enterprise needs and the paperwork associated with applications and reporting requirements. Together these were held as disincentives to participating in government schemes. Callus (1994) and Schofield (1994) question the relevance of a big business manufacturing model

of training for small businesses in a range of industries. Schofield (1994) questions the appropriateness of traditional course-based models of training for small business where other methodologies may be more relevant.

A concern arises out of recent research which suggests that the interest in training is not being sustained in new enterprise-based industrial agreements. Callus (1994) reports the results of a study of 119 enterprise agreements covering less than 20 employees. He found that only 44 per cent of agreements made any reference to training compared to 69 per cent of agreements covering 20 employees or more. Misko (1996) concluded that the provision of formal work-based training is not at all widespread in Australian enterprises. Smith (in press) reported that training provision in enterprise bargaining negotiations amongst the case enterprises he studied was low. Moreover, similar but more alarming findings are reported by Guthrie and Barnett (1996). They found that only one third of the 1913 recent enterprise agreements they examined mentioned training arrangements and only a quarter of agreements had a structured training approach. However, training may be provided as the operational issues mentioned in agreements are put into practice. Further, only a small percentage of these actually proposed structured training arrangements. Together, this data suggests that commitment to securing benefits through training is dissipating.

The form of participation in training which is most commonly reported by enterprises was informal, unstructured and on the job. The incidence of this type of training was only significantly lower in very small enterprises with fewer than 10 employees. In fact, 78 per cent of these workers reported receiving informal training compared with 84 per cent of workers in large enterprises (ABS 1993; Baker & Wooden 1995). Misko (1996) also reports that a majority of small enterprises surveyed indicated that although they were not involved in any formal work-based training, practical training was provided by experienced employees who explain, demonstrate and supervise as new employees learn their tasks.

Guthrie and Barnett (1996) conclude that the importance of informal training at enterprise level has not been fully recognised and is undervalued. This may well be true, because in one study (Billett 1994b), the benefits of an investment in formal training in one enterprise were overshadowed by the reported contributions of everyday experiences (informal training) in the workplace. As the data suggest, this informal learning is as much a part of larger enterprises'

contribution to training as that found in small enterprises. Smith (in press) found that some enterprises were giving responsibility for training to line managers who would act as coaches to their employees. This is less costly than other programs and provides very relevant training. Harris (1996) also reports of the increasing emphasis in workplaces on coaching rather than instructing and the development of a learning culture.

Savellis (1995) describes some large organisations that are moving away from the traditional approaches of formal classroom training to work-centred learning (WCL), in which learning becomes part of employees' day-to-day tasks. Learning modules developed by experienced workers are used on the job. For enterprises, this approach to learning is always linked to their needs, is relevant and has practical and applicable benefits. Hence, these approaches emphasise the specific outcomes of the training.

Specialisation

Those enterprises whose specialisation coincides with that of existing VET provisions will be served by the publicly funded VET system. But an enterprise, whose speciality is outside these provisions, which is unusual or even unique, will receive a different form of assistance. For example, enterprises whose activities are aligned to legislated apprentice VET provisions may make a lower contribution to skill development than those whose training is not supported through public provisions. Case studies of electricity generation, copper smelting and secondary processing were necessarily sponsored by the employer because no public provision was available (Billett 1994a).

Curtain (1996) identified problems of skill development within a number of 'high tech' export companies which had to develop internal labour markets within their enterprises to maintain and expand their business. The Ford motor company in Australia demonstrates the need to spend 8 per cent of its salary and wages bill on education and training. The company does this in support of their core business activity—the design, manufacture and distribution of automotive products. Ford delivers accredited courses in vehicle and automotive manufacturing and engineering, with the goal of working towards total quality excellence and market leadership (Miller 1996). In a different way, those enterprises whose specialisation is the subject of pre-employment courses (e.g. travel, retail, hospitality) might avoid making any

significant contribution to the initial development of employees' skills. Despite conjecture such as this, there appears to be little research which examines how the relationship between enterprises' specialisation and publicly funded provisions influences differences in the contributions made to the initial and further development of workers' skills.

Location

The location of an enterprise also influences the degree by which it may need to invest in training. Isolation, for instance, is a factor which determines decisions about training. In a 1993 report commissioned by the Tasmanian Food Industry Training Board concerning King Island, it was reported that growth of the island's food industries was being hampered by the lack of an integrated vocational education and training system on the island. Considerable cost is involved in accessing training programs off the island and it was recommended that a broad-based open learning facility be established to support the food industry's growth. However, at the time of writing, no progress has been made and when specialist skills are required new staff are recruited from the mainland. Equally, enterprises which are some distance from provincial cities or centres are likely to have to make decisions about how best to furnish their skill development needs. Billett (1994a) recommends that assistance is given to enterprises in Queensland for the development of programs that focus on the particular requirements of individual settings. By encouraging these enterprises, their specific needs and remoteness may be addressed.

Location can have another effect on training. As it is often difficult to recruit workers to country locations, it is necessary to train existing workers to meet skill needs. Baker and Wooden (1995, p. 47) reported that workers living outside capital cities had 16 per cent more chance of participating in in-house training courses than workers living in the major cities.

Discussion

The investment in training by small and large enterprises has been the focus of much inquiry. Consistent findings suggest that the larger the enterprise, the more likely it is to make a significant investment in training. Small business investment seems to be inhibited by the nature of its activities, precipitous viability, beliefs about low skill levels and the lack of incentives for small

business workers. Evidence suggests that where a skill gap is recognised, there is a need to rectify the problem. However, the solution may well be found in the labour market, not through an investment in training. The fact that many small businesses are not involved in formal training must be of concern if the objective of training is to make Australian workplaces more productive. This is particularly important when much of this strategy is based on enterprises having a key role in the provision of the nation's skill base. How can these businesses share the benefits of investing in training if they are not involved in the process or feel it has no relevance to them?

There is likely to be ongoing interest by government in the small business commitment to training. However, these findings suggest that unless fundamental shifts occur in the beliefs of small business owners, national goals may remain unfulfilled. Support structures as proposed by Catts (1996) may provide a basis for further activity. Rather than just being persuaded, if small business is able to experience the benefits of training more directly they may well take greater interest. It seems that informal training provisions are common to small enterprises and should be encouraged as an approach to learning which best suits their needs. Further inquiry is required to identify those approaches to informal learning in workplaces which can be modelled to encourage greater participation. Perhaps the work done in Germany, Switzerland and Austria by industry-supported, guild-based training consultants working with small enterprises might be worth examining in greater detail.

The degree to which an enterprise is likely to invest in training is also influenced by its speciality and, in particular, whether there is coincidence between the needs of the enterprise and what VET provisions are available through the publicly funded system. Pre-employment courses provide a ready labour market for some enterprises, while for others apprenticeship programs exist. However, many enterprises' specialisation may fall outside the public provision. Hence, they will have to sponsor their own training provisions. In a similar way, enterprises in remote locations are likely to invest more than their less isolated counterparts. Alternatively, they can recruit rather than train. There appears to be a gap in the literature on these matters and their likely influence on the overall contribution to the nation's training effort.

Enterprises and returns

What are the returns on investment?

IT IS WIDELY reported that enterprises are interested in the benefits of training securing improved workplace performance. This performance was sought in terms of specific knowledge across enterprises, with large enterprises also showing interest in the capacity of training to deliver more strategic goals related to performance. However, it is particularly important that overall, there are few studies which report enterprise interest in actually seeking out evidence of the benefits of their investment in training. Still fewer are reported to undertake any formal evaluation. Instead, the key source of interest in quantifying such an outcome is government, as evidenced by the number of studies it has sponsored to try and quantify the benefits of training.

Baker and Wooden (1995) report that by far the most common reason that enterprises give for embarking on formal training is to improve work performance. Other reasons given in order of importance were: for multi-skilling; to assist an employee move to a higher position; and to meet the requirements of the now defunct Training Guarantee Scheme. Catts (1996) proposes three primary benefits that enterprises are attempting to secure from their commitment to training. These are to introduce new technology, develop work methods including multi-skilling and develop the personal and interpersonal skills of their workforces.

The Coopers and Lybrand (1996) study of the economics of training in the 15 member States in the OECD finds that the majority of enterprises believe or acknowledge that staff training does bring returns in the areas of: (i) productivity improvements; (ii) greater workforce flexibility; (iii) savings on material and capital costs; (iv) a more motivated workforce; and (v) improved quality of the final product or service. Billett (1994a), in a survey of seven enterprises, considered the benefits of training across the areas of production, staff, equipment and work practice. Moreover, training was particularly valued for its ability to secure organisational and strategic goals. In a similar way to the Coopers and Lybrand (1996) report, Carnevale and Schulz (1990)

earlier proposed that the benefits of training programs can be considered in three categories: (i) increased revenue; (ii) decreased or avoided expenses; and (iii) intangible benefits. Increased revenue benefits relate to increased output; and decreased or avoided expenses relate to improved quality measured by reduction of scrap, absenteeism, inaccuracy, accidents and wasted time or materials. Intangible benefits are those which are valuable but very difficult to quantify, such as employee flexibility and improved morale.

Yet these lists of outcomes are more intentions than proven benefits, as noted in reports by Burke (1995), Carnevale and Schulz (1990), Davidson, et al. (1997), and Coopers and Lybrand (1996). These studies show that there are few reports of cost-benefit analyses of training within enterprises, due to the problem of separating the benefits of training from those attributable to other factors. Billett (1994a) reports that none of the enterprises in his study had any formal mechanisms to equate the expenditure on training with productivity increases. Moreover, when the site-based researchers in this study attempted to do so they met with a lack of interest and a number of administrative barriers. The intended benefits of training are all mentioned in the following studies of enterprises' interest in the outcomes of training, but at issue is the degree to which these are perceptions and beliefs or whether they are based on any form of evidence.

Davidson et al. (1997) examined the approach taken to the evaluation of training benefits in 12 large enterprises. The study identified objectives for the evaluation of training and their distribution across the enterprise. Strategic goals were the ultimate concern and the identification of appropriate performance indicators and practical means for appraising them featured in the data. In common with the aforementioned study, it was noted that the separation of information about the training system from the enterprises' financial systems inhibited CBA.

Car manufacturer Ford Australia believes that their education and training programs have contributed to the success of the company, measured by positive trends in key performance indicators (KPIs) (Miller 1996). KPIs include improved customer satisfaction, improved productivity, reduced absenteeism and world-wide Q1 ratings in areas of plant operations. Selby Smith and Selby Smith (1996) found that in a study of training's role in implementing restructuring in the Australian Public Service, an improved

climate developed between management, staff and unions as a result of the training program.

Misko (1996), reporting on survey responses from 54 businesses, found that the most frequently identified benefit of work-based training related to developing those skills which contributed toward the performance of the core business activity of the enterprise. Other frequently mentioned benefits were related to improved customer service, improved quality and efficiency and improved employer-employee relationships. Misko (1996) also conducted 13 case studies to complement the national survey. The benefits of training most frequently identified among these organisations were an improved occupational health and safety record, increased worker flexibility and productivity, improved customer satisfaction, an enhanced contribution toward organisational goals and a better understanding of the culture of the organisation.

McDonald (1995, p. 8) lists the possible benefits of competency-based training and assessment for enterprises as better quality control for assessing the competence of individuals both at work and before entering the workplace, and buying into the national system of the future. He claims training providers benefit from a more coherent and relevant provision of training and individuals have a proof of competence. The three parties (enterprise, provider and employee) are said to benefit from a better-integrated training, assessment and certification system, the better use of skills of individuals, more effective training and by driving changes in the training system.

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Vickery and Wurzburg (1992) reported on the OECD's findings on further education and training. They show that the economic value of investing in new technologies was only fully realised when this investment was supported by the appropriate training of workers using the new technologies and was associated with appropriate changes in work organisation.

Billett (1994a) found that among the enterprises he studied there was a strong consensus that without a training provision, increases in production—by way of the introduction of new equipment, changes in work practices, multi-skilling and continuous improvement—could not be achieved. In addition, it was proposed that training promotes among employees a greater awareness of

the change process and, consequently, an improved alignment with the organisation's goals. However, Billett (1994) states that:

> *training alone is not a sufficient activity for the improvement of productivity or the realisation of a return on a training investment. The benefits of training need to be considered in conjunction with other factors, particularly the nature of workpractice, the scope of workers' activities and the decision-making roles afforded to employees.* (Billett 1994, p.30)

Benefits for enterprises are also being sought from VET programs which improve the capacity of workers to communicate. For example, communication skills training has been increasing in workplaces during the 1990s (Misko 1996) with the benefits derived from these programs reported widely (ALMITAB 1996; DEETYA 1996; McQueen 1996). Pearson (1996), in a study of communication skills training in 24 workplaces, claimed to demonstrate the impact of language and literacy training in terms of direct cost savings to enterprises. In addition, this training was reported to benefit enterprises in the form of improved interpersonal skills and performance in those areas which contribute toward the achievement of strategic goals.

Many of the benefits reported above appear to be unintended or unanticipated outcomes which emphasises the difficulty of quarantining the outcomes of training. As discussed below, in a similar way factors influencing those outcomes are unable to be clearly identified and appraised.

In addition to research reflecting enterprise interest in the benefits of the investment in training, other interests are evident. Governments are clearly concerned to gather evidence about cost-effectiveness and getting the best return on investment in VET (Butterworth 1995). For example, the majority of research into the benefits of training, particularly that which seeks to make links between bottom-line profit and training, is sponsored by government. Few enterprise-sponsored studies have been identified. Presumably, the interest by government is twofold: (i) validating policy decisions and (ii) seeking to encourage enterprises to make a larger investment in training.

Government interest in this matter is in contrast to the interests of enterprises who, in the absence of formal evaluations, appear to make judgements about the benefits of training on the basis of faith. Through the studies reviewed here, it seems that the investment by large companies is an act of faith based

more on belief than evidence. They believe that training is able to secure complex outcomes in cultural change and the broadening of responsibilities. However, in small business there is a lack of faith with the perception that investment in training will not, overall, be able to resolve problems.

Another group with interest in the benefits of training is the industry trainers themselves. It is claimed that they are increasingly being asked to evaluate their programs and justify expenditure on them (Catts 1996; Carnevale & Shulz 1990; Leimbach 1994; Mountain 1994; Schneider et al. 1992). But deciding what the term 'cost-effective' encompasses and coming up with a means of assessing it is problematic (McDonald 1995). There are differences in expectations of information about returns and what can be measured, judged and appraised. To assist in understanding expectations and limits of valid comprehensive analysis, a number of approaches to and models of cost-benefit analysis are available which differ in their scope.

Approaches to appraising returns

A number of models of cost-benefit analysis (CBA) have been proposed which make different types of claims and vary in scope. Schneider et al. (1992) claim to be able to measure competency before and after training and propose a dollar value to the improved performance. Bartel (1995) used information in a company database to illustrate that training has a positive effect on both wage growth and job performance. Leimbach (1994) proposes a CBA model for training, although acknowledges that in calculating training benefits in dollar terms the value of increased performance is difficult to determine and frequently based on subjective estimates. A range of variables can impact on training effectiveness. These include: the complexity of the training program; the fact that not all programs are designed to have an immediate impact; the number of personnel trained influencing effectiveness where the concepts of the training program involve the whole enterprise; and the issue of the more central a program is to skill requirements, the greater the impact will be.

Smith (1993) reports on factors within enterprises that influence the success of training. These include strategic planning in terms of training, the industrial relations climate, human resource policies, technology and work organisation supportive of training programs. Other factors that might impact on assessing

training effectiveness are the ability to transfer learnt skills to the job, on-the-job supervision and positive reinforcement for improved performance (Misko 1996).

Hedges and Moss (1996) examined driver training effectiveness in terms of reduced vehicle operating costs. While financial benefits could be attributed to the training program, the authors realised (like others) that other factors were contributing to the effectiveness of the program. What was thought to be a relatively straightforward study turned out to be a complex task because of the range of variables. The difficulties experienced by Hedges and Moss (1996) and others were that in order to calculate the benefit of investment for a training program, the outcomes measured to assess the return must be causally linked to the training provision (Robinson & Robinson 1989). The failure to be able to account for the range of factors and the degree to which they influence outcomes appears to frustrate claims to be able to measure validly the benefit of training as a 'bottom-line' outcome. Interestingly, most models which claim to be able to achieve this are prescriptions for practice, rather than being tested by practice. Those that have attempted to evaluate the benefits usually report that the complexity of the task and difficulty with controlling variables obscures the provision of sensible findings. Consequently, approaches to assessing benefits which adopt selected or alternate approaches may be useful for specific purposes rather than those which claim to be able to account for all variables.

Mountain (1994) and Pine and Tingley (1993) suggest analysing evaluation data from training programs at the four levels of the Kirkpatrick model (cited in Carnevale & Schulz 1990). These levels are:

1 participant satisfaction
2 evidence of knowledge being acquired
3 participant application of skills back on the job
4 discernible improvements, in terms of reduced costs, improved quality

Davidson et al. (1997) have developed frameworks which enterprises can use to assess the returns on their investment in training. Their report lists four stages of evaluation: budget evaluation, skills evaluation, project evaluation and strategic evaluation. This study also details six techniques that enterprises can use to assess their return on investment. These are also related to

Kirkpatrick's four levels of evaluation. Technique A assesses whether the training program was within the budgeted target, technique B collects information about trainees' reaction to the program, technique C focusses on the competencies gained by trainees and technique D assesses whether trainees apply the competencies achieved to their work. Technique E is a quantitative assessment which provides information on whether the benefits derived from the training program exceeded its cost and technique F links training to the strategic objectives of the enterprise.

Using a selective approach, Pine and Tingley (1993), working with maintenance work teams, chose decreased downtime as the desired measurable outcome to demonstrate a return for a team-building program. They reported that the act of carrying out an evaluation improved management's perception of training. Also, the fact that they were intending to evaluate at Level 4 of the Kirkpatrick model was claimed to have helped them develop more effective training. This approach demanded they work back from the outcome they chose, to demonstrate a return on investment in order to develop a training program which would achieve the desired outcome.

McDonald (1995) argues that there are no models for linking training with the extent of learning, personal benefit, social benefit and, in companies, organisational effectiveness and productivity. Yet, he warns that there can be a danger in assessing training in terms of easily measurable outcomes, since often the most relevant outcomes are those that are the most difficult to measure. Carnevale and Schulz (1990) cite a number of United States companies that evaluate their programs using mainly qualitative data. Billett (1994a) provides a mechanism which organisations could use to make judgements about the direction and focus of their investment in training. This is based on the benefits of training within the four broad areas of production, staff, equipment and work practice and the sub-elements within them which provide a list of priority areas to be considered by enterprises.

Although CBA techniques in whatever form may be useful for trainers to demonstrate value of their programs to management, Lombardo (1989) found they were being used by very few training managers. Two major reasons were advanced for CBA's lack of utility. The first was difficulty in quantifying training benefits such as employee motivation, improved communication

techniques and improved self-esteem. The second was an inability to separate the influence of other factors on training performance and the cost of CBA.

There are difficulties in linking a relationship between training and benefits. However, Mountain (1994) and Kenyon (1992) report that the consequences of not evaluating training programs could result in training being seen as ineffective and the current emphasis on enterprise training in Australia being rejected. This warning may be quite timely, as is shown by the evidence of Misko (1996), Callus (1994), Davidson et al. (1997) and Guthrie and Barnett (1996).

The findings above suggest that approaches to evaluation which might not be comprehensive but can offer some account of returns may well be useful to relay the benefits of training to enterprises.

Discussion

There appear to be differences between those returns being sought by government and those that are actually able to be identified by enterprises or which they are interested in identifying. Whereas government is more interested in evaluating the impact of its policy decisions, enterprises are interested in whether training can provide specific provisions associated with goals of skill development, change and improving the morale and involvement of its workers. There is not much evidence of interest from enterprises to secure detailed statements of returns accruing from training (Billett 1994a; Deloitte 1989, cited in McDonald 1995; Misko 1996; Davidson et al. 1997). Four types of returns have been identified in the literature. These are: (i) 'bottom-line' profit; (ii) direct influence on productivity; (iii) securing strategic or organisational change goals; and (iv) contribution to the community. However, there are quite distinct differences in the interest and expectations about identifying these returns. The relationships between 'bottom-line profit' and training is not attracting a lot of interest from enterprises. However, government has a keen interest at this level, presumably to substantiate policy decisions and encourage wider investment in the nation's workforce by the private sector.

Productivity increases arising from training were the focus of some studies, with the literature revealing alternatives between limited (e.g. Dockery et al. 1996) vs comprehensive models (e.g. Billett 1994a; Carnevale & Schulz 1990;

Davidson et al. 1997). Securing strategic goals through training includes reduced wastage, reduced absenteeism, less accidents, improved staff morale, quality improvement, multi-skilling, enterprise bargaining arrangements etc. (Billett 1994a). Although the study by Davidson et al. (1997) provides a set of techniques for evaluating the returns to enterprises on their investment in training, the evidence suggests that enterprises lack the interest and/or expertise to use such approaches.

Contribution to community was not a widely reported concern. However, a study of the cost to employers of apprenticeship training (Dockery et al. 1996) reported that employers did not only describe the benefits of employing apprentices in economic terms. Employers felt obliged to contribute to training in their industry and thus the supply of tradespersons. They also wanted to give young people an opportunity. In a study of OECD countries, Coopers and Lybrand (1996) claim a general benefit accrues to the community from a more educated workforce. This occurs in the form of greater social cohesion, enhanced environmental awareness, improved health and an improved quality of life for individuals. Their report states that such benefits are very important and must be considered when governments and enterprises make investment decisions.

Noting what has been stated by Coopers and Lybrand (1996), it is important to separate national goals from those of enterprises. What is best for Australian industry nationally, in the form of vocationally educated and trained workers, may not be the same as industry's perceived needs for enhancing productivity (Sloan 1994; Yeatman 1994). Wolf (1996) states that vocational training systems must include a mix of skills from the categories of generic foundation skills development and industry or occupation-specific skills, in response to current needs and some specific skills development for the future. Wolf (1996) has shown across OECD countries that employers will pay for current specific skills and some generic skills in order to achieve their core business goals. However, young people setting out to secure employment will choose training which will develop generic skills to maximise job opportunities and adults will want to develop a mix of skills. Wolf (1996) stresses the need for society to ensure that generic foundation skills, industry/occupation-specific skills and specific skills for the future are all developed. Society must bear the cost of ensuring that this occurs in order to meet the demands of the future.

As Moran stated in 1993:

> *We are at a critical point in the development of vocational education and training in Australia. Australians are coming to rea'ise that if we focus on Australia's longer term interests, we can achieve a commitment to develop common goals and national plans.* (Moran 1993, p.9)

However, the research reviewed for this stocktake does not reflect this optimism. Rather, enterprises are emphasising their more immediate andspecific needs. The degree to which the development of skills is aligned to creating an adaptable national workforce appears, at best, to be coincidental.

From the work identified and appraised in this review, it could be advanced that the twin policy goals of increasing the quantum of training and securing the sponsorship of that training by enterprises are not being realised.

It may be necessary to reconsider policy directions about providing support in order to achieve these national goals. Support may be needed for those enterprises which are contributing to the development of the nation's workforce. This may be particularly necessary in those areas which are of emerging national interest and where the expertise and infrastructure for this development is unavailable within the nation's training system.

Findings and directions for further research

THIS SUMMARY SYNTHESISES the findings from the body of the report and presents a series of statements with a policy orientation highlighting those areas which may be selected for further research. Guiding this analysis is the view that government interest in investment by enterprises in vocational education and training (VET) is linked to dual policy goals. These include attempting to increase the quantum of national VET activity and seeking for the cost of that provision to be borne by the enterprises who derive benefit from VET. Reference to VET in this paper encompasses both 'formal' (e.g. participation in accredited courses or courses organised by enterprises) and also 'informal' (e.g. learning on-the-job) provisions, although the majority of the research has focussed on surveys and case studies of formal provisions.

The analysis of recent research in this summary is presented under two headings: *Enterprises and investment*, and *Enterprises and returns*.

Enterprises and investment

Not all enterprises make the same level of investment (contribution) to VET, with size, specialisation and location being variables which influence different levels of contribution. While dealt with separately, these variables are interdependent.

Size

A synthesis of recent research indicates that, across enterprises, the investment in 'formal' training lacks uniformity, with larger enterprises carrying a higher level of burden than smaller enterprises. The evidence suggests that medium and large enterprises are typically engaged in making contributions to VET. Admittedly, this evidence usually reflects 'formal' VET provisions and may not fully account for the 'informal' VET provisions which occur in both small and large enterprises. Factors such as required level of skills, lack of incentive, other priorities and a preference for recruitment rather than training are

proposed as reasons why smaller enterprises do not invest heavily in VET. A contributing factor is also the lack of knowledge within small business about training activities and networks. Given governments' ongoing interest in small business, further research is required to examine how these impasses can be overcome. This inquiry would benefit from examining the local-regional professional/occupational support strategies that have been adopted in countries such as Germany and Austria.

Specialisation

Enterprises are required to make different levels of contribution based on their specialisation. The training needs of some are furnished by existing publicly funded VET provisions, which are dominated by particular industry groupings (e.g. metals, construction, hospitality). These enterprises are required to make a different (lower) level of contribution than those whose specialisation is not catered for in the VET sector. Apart from equity, this situation may result in enterprises within strategically important or emerging industries (e.g. graphic design, software application, secondary processing, copper refining) being expected to make higher levels of contributions to VET. This inhibits these provisions and makes them increasingly enterprise specific. That is, the development of the skills which are a national priority may be inhibited. Equally, inequities in demands upon enterprises may well suppress levels of VET activity. An issue for national policy arising from this is whether the different levels of investment expected of enterprises influence their contribution to training. Also, how does this influence VET provisions in emerging and important strategic industries? Are national VET goals best addressed by arrangements which favour one sector over another? This area is under-researched.

Location

Access to publicly funded VET provisions is not evenly distributed. Hence, the location of enterprises is likely to influence their contributions to VET. For example, enterprises in remote locations or away from appropriate publicly funded VET programs may have to make a higher level of contribution or else recruit the required skills from the labour market. Given that a number of the nation's major industries are found in remote localities, this may well be an inhibiting factor in their willingness to invest in VET provisions. However, it seems that they will invest when training is needed to achieve core business

activity. Like specialisation, the effects of location on an enterprise's contribution to training remains under-researched.

In sum, enterprise investment in training is focussed on those skills and knowledge which are relevant to their particular enterprise's needs. This is understandable. However, the outcome will be the development of specific skills and knowledge which may inhibit transferability to other enterprises or situations. This finding suggests that, with the increased emphasis on enterprise training of the nation's workface, severe imbalances may occur associated with the focus and distribution of the load of that task. Significantly, the government's policy strategy may be weakened by emerging evidence of a reduction in the interest in training by enterprises. Recent research indicates that few enterprise-bargaining agreements make mention of training provisions and fewer still mandate structured training arrangements. Hence, if participation is not part of conditions of remuneration and advancement, the impetus for participation in VET may dissipate. Together, these findings suggest that key government policies over the last decade have failed to have the desired impact—i.e. enhancing the quantum of VET and its sponsorship by enterprises.

Therefore, questions emerging from this analysis are:

- In what ways does the different level of training investment required by enterprises influence their commitment to training?
- What is the impact upon national VET when publicly funded VET arrangements favour particular industries over others?
- What are the long-term national consequences of investment in training which is at a low level and is enterprise specific?
- How can the burden of the development of skills required for national goals best be shared in ways that encourage the investment in skill development by enterprises?

These questions are not addressed by current research.

Enterprises and returns

Interest in securing information about the returns on investment in training differs widely. Government appears more interested in a cost-benefit analysis

(CBA) than enterprises. The sponsorship of research in this area reflects concerns with justification and evaluation of government policy. For instance, the term 'investment' used in this study and widely elsewhere is associated with the policy goal of providing evidence that enterprises get a return on their investment. However, the review identifies little interest by enterprises in securing detailed information about returns on training expenditure. Where it exists, enterprise interest in its investment in training is diverse. For example, there is some evidence that large enterprises are more likely to be interested in VET securing strategic shifts (e.g. multi-skilling, quality improvements) than precise and detailed accounts of returns. Enterprise decisions about investment in VET are often handled as an annual budget item, or as an act of faith, without any cost-benefit analysis. Smaller enterprises appear to reflect a belief that their investment in training would not be worthwhile, perhaps due to experience of irrelevant training not specific to their enterprise. This may explain their reluctance to participate in VET. In overview, these enterprises fail to see the benefits of investment in VET, let alone have any interest in quantifying that expenditure. Industry trainers have particular interest in demonstrating the benefits of enterprises' investment in training. However, the evidence is that they or anybody else in enterprises rarely has or uses the expertise of cost-benefit analysis (CBA).

Various models of CBA are proposed in the literature. They can best be categorised by the scope of their analysis. That is, there are those which use a few variables (e.g. participant satisfaction, relevance to workplace activities) to arrive at conclusions about returns. Other models are proposed which claim to account for all the variables which influence productivity or bottom-line effects. The studies that have addressed this question overwhelmingly agree that it is either impractical or impossible to account for all the variables which influence return on investment in a way that is valid. The consensus is that there are too many compounding and contradictory variables to suggest sensibly that returns can be quantified in terms of a bottom-line profit. Articles proposing a comprehensive approach tend to be prescriptions for practice, rather than being based in practice. The exceptions offer analyses which are far from being comprehensive. Those studies reporting the complexity of the task are usually the product of empirical activities. Given the lack of interest by enterprises in quantifiable CBA, models which measure returns of a few important variables may be welcomed. Arising from this review is the need to provide models of calculating benefits which address those variables in which enterprises are interested.

Perceptions about the value of VET are the key factor in determining the degree of investment. Acts of belief more than evidence appear to be driving decisions about investment in both large and small enterprises. So, further inquiry is required to address the task of changing the belief within smaller enterprises that investment in training is not worthwhile. Such perceptions are likely to change when specific and tangible examples are available. If such perceptions cannot be changed, a policy focus may need to consider how to address the danger of imbalance and erosion of the national capacity of VET by placing too great a responsibility on enterprises. Given the recent data about low levels of interest in formal training structures being included in enterprise agreements, this concern may be both pertinent and critical.

Questions emerging from the analysis of the literature on returns to enterprises from their investment in training include:

- How best can barriers which inhibit investment in training by small business be overcome?
- If low levels of investment in training by small business continue, what approaches need to be implemented to maintain and increase the nation's quantum of training activity?

In sum, a great deal of research has been sponsored to understand factors which determine how and why enterprises invest in training. Further work is required to determine the consequences of the uneven level of investment that is required of enterprises, using variables such as those referred to above (e.g. speciality and location). More work also needs to be done to gauge the consequences of placing a key role for developing the nation's work skills on enterprises who indicate flagging interest. Also, the national consequences of the development of enterprise-specific knowledge require appraisal. Moreover, there are gaps in finding appropriate strategies to encourage broader participation by both large and small enterprises. In particular, the strategies which should be adopted to change the perception of training within small business remains unclear.

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This review of research on vocational education and training is one of a series of reports commissioned to guide the development of future national research and evaluation priorities.

Dr Stephen Billett and Maureen Cooper have reviewed how enterprises have benefitted from investing their resources and finances in vocational education and training in the last six years. They draw conclusions relevant to vocational education and training policy and identify areas for further investigation.